

1. (Once Amended) An ink jet printer apparatus for printing an image on a receiver medium comprising:

at least one nozzle connected to a supply of ink;

a controller, responsive to image data representing the image and to a first signal related to receiver media type and to a second signal related to ink type and to a third signal related to printing resolution, for generating a fourth signal for determining for said nozzle an ink drop volume to be deposited at each of plural pixel locations on the receiver medium by that nozzle, at least some of the fourth signals determining at least three different drop volumes including a no drop decision, the controller generating a table of drop volume related values for printing the image data in response to the first signal, the second signal and the third signal, with different table values being provided for different combinations of receiver media types, ink types and printer resolutions;

an actuator associated with said nozzle and responsive to said fourth signal for controlling said nozzle to deposit at a respective pixel location a respective drop volume to be deposited in accordance with said fourth signal so that the printer prints at least three different drop volumes including no drops at different pixel locations on the receiver medium to print the image on the receiver medium.

2. (Once Amended) The ink jet printer apparatus of claim 1 and wherein a carrier supports the at least one nozzle for movement relative to the receiver medium so that the nozzle is moved across the receiver medium with plural recording passes to record an image swath of pixels on a reference raster during each such recording pass and the controller is adapted to provide fourth signals to the actuators regarding drop volumes to be deposited on the reference raster for that image swath during each respective recording pass of the plural recording passes.

3. (Once Amended) The ink jet printer apparatus of claim 2 and wherein the controller includes a pass table that stores drop volume related values, and in response to image data in the form of a multitone pixel value signal the controller generates a fifth signal related to the drop volume related value.

4. (Once Amended) The ink jet printer apparatus of claim 3 and wherein the fifth signal represents an index value associated with a respective drop volume.

5. (Once Amended) The ink jet printer apparatus of claim 4 and wherein the controller includes a print masking table that stores decision values for determining whether or not a drop is to be deposited by each nozzle at a respective pixel location on the reference raster during a respective recording pass and the controller is responsive to the fifth signal and to a respective decision value in the print masking table to generate the fourth signal for controlling the actuator to determine drop volume to be deposited at the pixel location by the nozzle during the respective recording pass.

6. (Once Amended) The ink jet printer apparatus of claim 5 and wherein the apparatus includes a communication channel for receiving inputs for a job of a selected one of plural recording resolutions, a selected one of plural receiver media types and a selected one of plural inks for processing the job and the controller, in response to such job inputs, generates a sixth signal representing a first code value from a table of plural number of selectable code values, the number of selectable code values being substantially less than the number of combinations of plural recording resolutions, plural receiver media types and plural inks possible for selection for the job and the apparatus further includes either the same communication channel or a separate communication channel for receiving inputs of a seventh signal representing said selected one of plural recording resolutions, a selected one of plural bits per pixel, a selected number of band passes to be used to print the image swath on the reference raster and optionally a selected number of directions in which printing is to occur and in response to the sixth and seventh signals generates table values for the pass table.

7. (Once Amended) The ink jet printer apparatus of claim 6 and wherein the controller includes a drop volume table that is responsive to application of a decision based on a decision value in the print masking table for generating the fourth signals representing an ink drop volume for recording on the receiver medium in a respective pass.

9.(Once Amended) The ink jet printer apparatus of claim 8 and wherein values in the shifted raster pass table and reference raster pass tables are adapted to be changed in response to changes in the sixth signals representing a change of one of recording resolution or receiver media type.

10.(Once Amended). An ink jet printer apparatus for printing an image on a receiver medium comprising:

at least one nozzle connected to a supply of ink;

a carrier for supporting the at least one nozzle for movement relative to the receiver medium so that the nozzle is moved across the receiver medium with plural recording passes to record an image swath of pixels;

69 a controller, responsive to image data representing the image and to a first signal related to receiver media type, for generating a second signal for determining for said nozzle an ink drop volume to be deposited at each of plural pixel locations on the receiver medium by that nozzle, ~~at least some of the second signals~~ ^{1/2} determining at least three different drop volumes including a no drop decision;

an actuator associated with said nozzle and responsive to said second signal for controlling said nozzle to deposit at a respective pixel location a respective drop volume to be deposited in accordance with said second signal so that the printer prints at least three different drop volumes including no drops at different pixel locations on the receiver medium to print the image on the receiver medium;

1/2 and wherein the controller includes a pass table of drop volume related values for printing on the reference raster and a different pass table of drop volume related values for printing on a shifted raster, and wherein the shifted raster represents, for a predetermined printing resolution, a grid pattern of possible pixel locations on the recording medium that are shifted relative to each pixel location on the reference raster by an amount less than the spacing between adjacent pixel locations on the reference raster in the pass direction and by an amount less than the spacing between adjacent pixel locations on the reference raster in a transverse direction to the pass direction, and wherein during a pass the controller is adapted to control the nozzles to print pixels either on the reference raster or the shifted raster but not both during any particular pass.

69 14. (Once Amended) An ink jet printer apparatus for printing an image on a

receiver medium comprising:

at least one nozzle connected to a supply of ink;

a carrier for supporting the at least one nozzle for movement relative to the receiver medium so that the nozzle is moved across the receiver medium with plural recording passes to record an image swath of pixels;

a controller, responsive to image data representing the image and to a first signal related to receiver media type, for generating a second signal for determining for said nozzle an ink drop volume to be deposited at each of plural pixel locations on the receiver medium by that nozzle, at least some of the second signals determining at least three different drop volumes including a no drop decision;

an actuator associated with said nozzle and responsive to said second signal for controlling said nozzle to deposit at a respective pixel location a respective drop volume to be deposited in accordance with said second signal so that the printer prints at least three different drop volumes including no drops at different pixel locations on the receiver medium to print the image on the receiver medium and wherein there are plural of said nozzles and the controller includes a table of drop volume related values for printing on a reference raster and a different table of drop volume related values for printing on a shifted raster, and wherein the shifted raster represents, for a predetermined printing resolution, a grid pattern of possible pixel locations on the receiver medium that are shifted relative to each pixel location on the reference raster by an amount less than the spacing between adjacent pixel locations on the reference raster in the first direction and by an amount less than the spacing between adjacent pixel locations on the reference raster in a transverse direction to the first direction, and wherein, during a pass movement of the nozzles relative to the medium in a predetermined direction, the controller controls the nozzles to print pixels either on the reference raster or the shifted raster but not both during any particular pass.

15.(Once Amended) A method of operating an ink jet printer apparatus for printing an image on a receiver medium, the method comprising:

providing a print head having at least one nozzle;

generating a first signal related to one of plural receiver media types selectable for recording the image data, a second signal related to one of plural types of inks selectable for recording the image data and a third signal related to one of plural

printer resolutions selectable for recording the image data;

recording image data of the image by depositing at least three different ink drop volumes including no ink drop on the receiver medium at different pixel locations to form dots of different dot size or dot density at different pixel locations; and

wherein in recording image data of a same multitone image data value on different receiver media types, in response to the first signal related to receiver media type and the second signal related to the type of ink and the third signal related to printer resolution for recording the image data, the drop volumes deposited on one receiver medium of one receiver media type by the nozzle are different than the drop volumes deposited on another receiver medium of a second receiver media type by the nozzle and wherein receiver media type and ink type and printer resolution are used in determining drop volumes used in recording, with different table values being provided for different combinations of receiver media types, ink types and printer resolutions;

16.(Once Amended) The method of claim 15 and wherein the at least one nozzle is moved relative to the receiver medium with plural recording passes to record an image swath of pixels on a reference raster during each recording pass and ink drop volumes deposited at selected locations during each pass are in response to receiver media type and ink type and printer resolution.

17.(Once Amended) The method of claim 16 and wherein ink drop volumes during each pass are controlled in response to table values which are adjusted with receiver media type and ink type and printer resolution.

18.(Once Amended) The method of claim 17 and wherein job input signals are received corresponding to a selected one of plural recording resolutions, a selected one of plural receiver media types and a selected one of plural inks for processing the job and in response to the job inputs a code value is generated from a plurality of selectable code values, the number of selectable code values being substantially less than the number of combinations of plural recording resolutions, plural receiver media types and plural inks possible for selection for the job, the code value being used to identify a table of values associated with drop volumes used for printing.

27. (Once Amended) A method of operating an ink jet printer apparatus for printing an image on a receiver medium, the method comprising:

providing a print head having at least one nozzle;
generating a signal related to media type of the receiver medium;
recording image data of an image by depositing at least three different ink drop volumes including no ink drop on the receiver medium at different pixel locations to form dots of different dot size or dot density at different pixel locations;
and

wherein in recording image data of a same multitone image data value on different receiver media types, in response to the signal related to media type, the drop volumes deposited on one receiver medium of one receiver media type by the nozzle are different than the drop volumes deposited on another receiver medium of a second receiver media type by the nozzle and wherein the at least one nozzle is moved relative to the receiver medium with plural recording passes and records an image swath of pixels on a reference raster during at least one of such plural recording passes and ink drop volumes deposited at selected locations during each said at least one pass are in response to receiver media type, and further wherein the at least one nozzle is moved relative to the receiver medium with at least another one of the plural recording passes to record the image swath of pixels on a shifted raster, and wherein a shifted raster represents, for a predetermined printing resolution, a grid pattern of possible pixel locations on the recording medium that are shifted relative to each pixel location on the reference raster by an amount less than the spacing between adjacent pixel locations on the reference raster in the pass direction and by an amount less than the spacing between adjacent pixel locations on the reference raster in a transverse direction to the pass direction.

30. (Once Amended) A method of operating an ink jet printer apparatus for printing an image on a receiver medium, the method comprising:

providing a print head having at least one nozzle;
generating a signal related to media type of the receiver medium;
recording image data of an image by depositing at least three different ink drop volumes including no ink drop on the receiver medium at different pixel locations to form dots of different dot size or dot density at different pixel locations;

and

(a' cont'd)

wherein in recording image data of a same multitone image data value on different receiver media types, in response to the signal related to media type, the drop volumes deposited on one receiver medium of one receiver media type by the nozzle are different than the drop volumes deposited on another receiver medium of a second receiver media type by the nozzle and wherein the at least one nozzle is moved relative to the receiver medium during a pass to record an image swath of pixels on a shifted raster and moved into a pass direction on a separate pass to record pixels on a reference raster, and wherein the shifted raster represents for a predetermined printing resolution, a grid pattern of possible pixel locations on the recording medium that are shifted relative to each pixel location on the reference raster by an amount less than the spacing between adjacent pixel locations on the reference raster in the pass direction and by an amount less than the spacing between adjacent pixel locations on the reference raster in a transverse direction to the pass direction.

33.(Once Amended) A method of operating an ink jet printer apparatus for printing an image on a receiver medium, the method comprising:

providing a print head having at least one nozzle;

generating a signal related to media type of the receiver medium;

recording image data of an image by depositing at least three different ink drop volumes including no ink drop on the receiver medium at different pixel locations to form dots of different dot size or dot density at different pixel locations; and

(a' 2)

wherein in recording image data of a same multitone image data value on different receiver media types, in response to the signal related to media type, the drop volumes deposited on one receiver medium of one receiver media type by the nozzle are different than the drop volumes deposited on another receiver medium of a second receiver media type by the nozzle and wherein job input signals are received corresponding to a selected one of plural recording resolutions, a selected one of plural receiver media types and optionally a selected one of plural inks for processing the job and in response to the job inputs a code value is generated from a plurality of selectable code values, the number of selectable code values being substantially less than the number of combinations of plural recording resolutions, plural receiver media types and optionally plural inks possible for selection for the job, the code value being

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(contd)

used to identify a table of values associated with drop volumes used for printing.

36.(Once Amended) A method of processing image data for an ink jet print head, the method comprising:

receiving multitone image data representing at least three different gradation tone values including zero density or background;

receiving information relative to receiver media type upon which ink drops are to be deposited;

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in response to the information relative to media type, adjusting a parameter associated with drop volumes so that for different receiver media types a gradation tone value will be printed differently, and wherein for the gradation tone value and one media type a signal is generated for depositing an ink drop on a reference raster but not for depositing an ink drop on a shifted raster and for the gradation tone value and a second media type a signal is generated for depositing an ink drop on a reference raster and a signal is generated for depositing a supplementary ink drop on an adjacent location on a shifted raster, wherein the shifted raster represents, for a predetermined printing resolution, a grid pattern of possible pixel locations on the recording medium that are shifted relative to each pixel location on the reference raster by an amount less than the spacing between adjacent pixel locations on the reference raster in a pass direction and by an amount less than spacing between adjacent pixel locations on the reference raster in a transverse direction to the pass direction.

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38.(Once Amended) The method of claim 36 and wherein job input signals are provided corresponding to a selected one of plural recording resolutions, a selected one of plural receiver media types and optionally a selected one of plural inks for processing the job and in response to the job inputs a code value is generated from a plurality of selectable code values, the number of selectable code values being substantially less than the number of combinations of plural recording resolutions, plural receiver media types and optionally plural inks possible for selection for the job, the code value being used to identify a table of values associated with drop volumes used for printing.

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41.(Once Amended) A method of processing image data for a print

job to be printed by an ink jet print head, the method comprising:

receiving inputs for the job of a selected one of plural recording resolutions, a selected one of plural receiver media types and optionally a selected one of plural inks for use in printing the job;

in response to the inputs generating a code value from a table of a plural number of selectable code values, the number of selectable code values being substantially less than the number of combinations of plural recording resolutions, plural receiver media types and optionally plural inks possible for selection for the job.

42.(Once Amended) The method of claim 41 and wherein the code value represents a coverage factor equivalent for plural combinations in the set plural recording resolutions, plural receiver media types and optionally plural inks possible for use in printing the job.

Add the following the claims:

43. An ink jet printer apparatus for printing an image on a receiver medium comprising:

at least one nozzle connected to a supply of ink;

a controller, responsive to image data representing the image and to a first signal related to receiver media type, for generating a second signal for determining for said nozzle an ink drop volume to be deposited at each of plural pixel locations on the receiver medium by that nozzle, at least some of the second signals determining at least three different drop volumes including a no drop decision;

an actuator associated with said nozzle and responsive to said second signal for controlling said nozzle to deposit at a respective pixel location a respective drop volume to be deposited in accordance with said second signal so that the printer prints at least three different drop volumes including no drops at different pixel locations on the receiver medium to print the image on the receiver medium; and

a communication channel for receiving inputs for a job of a selected one of plural recording resolutions, a selected one of plural receiver media types and optionally a selected one of plural inks for processing the job and the controller, in response to such job inputs, is adapted to generate a third signal representing a first

code value from a table of plural number of selectable code values, the number of selectable code values being substantially less than the number of combinations of plural recording resolutions, plural receiver media types and optionally plural inks possible for selection for the job.

44. The inkjet printer apparatus of claim 43 and further wherein either the same communication channel or a separate communication channel is provided for receiving inputs of a fourth signal representing a selection of number of bits per pixel used in printing, a selected number of band passes to be used to print an image swath on a reference raster and optionally a selected number of directions in which printing is to occur and in response to the third and fourth signals the controller is adapted to generate table values for a pass table.

45. A method of processing image data for a print job to be printed by an ink jet print head, the method comprising:

receiving inputs for the job of a selected one of plural recording resolutions, a selected one of plural receiver media types and a selected one of plural inks for use in printing the job;

in response to the inputs generating a code value from a table of a plural number of selectable code values, the number of selectable code values being substantially less than the number of combinations of plural recording resolutions, plural receiver media types and plural inks possible for selection for the job.

46. A method of operating an ink jet printer apparatus for printing an image on a receiver medium, the method comprising:

providing a print head having at least one nozzle;
generating a signal related to media type of the receiver medium;

recording image data of an image by depositing at least three different ink drop volumes including no ink drop on the receiver medium at different pixel locations to form dots of different dot size or dot density at different pixel locations;
and

wherein in recording image data of a same multitone image data value on different receiver media types, in response to the signal related to media type, the drop volumes deposited on one receiver medium of one receiver media type by the nozzle